

SEQUENCE LISTING

<110> XIANG, JINHUA
WÜNSCHMANN, SABINA
SCHMIDT, WARREN
STAPLETON, JACK T.

<120> FULL-LENGTH GB VIRUS C (HEPATITIS G VIRUS) RNA TRANSCRIPTS ARE INFECTIOUS
IN PRIMARY CD4 POSITIVE T CELLS

<130> IOWA:030US

<140> UNKNOWN

<141> 2001-04-05

<140> 60/253,390

<141> 2000-11-27

<150> 60/195,597

<151> 2000-04-06

<160> 2

<170> PatentIn Ver. 2.1

<210> 1

<211> 9395

<212> DNA

<213> Hepatitis G virus

<400> 1

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<210> 2

<211> 2910

<212> PRT

<213> Hepatitis G virus

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                20                      25                      30

```

```

Trp Ala Gly Lys Cys Met Gly Pro Pro Ser Ser Ala Ala Ala Cys Ser
  35                      40                      45

```

```

Arg Gly Ser Pro Arg Ile Leu Arg Val Arg Ala Gly Gly Ile Ser Leu
  50                      55                      60

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```

Phe Tyr Thr Ile Met Ala Val Leu Leu Leu Leu Leu Val Val Glu Ala
  65                      70                      75                      80

```

```

Gly Ala Ile Leu Ala Pro Ala Thr His Ala Cys Arg Ala Asn Gly Gln
                85                      90                      95

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Tyr Phe Leu Thr Asn Cys Cys Ala Pro Glu Asp Ile Gly Phe Cys Leu
  100                      105                      110

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```

Glu Gly Gly Cys Leu Val Ala Leu Gly Cys Thr Val Cys Thr Asp Arg
  115                      120                      125

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Cys Trp Pro Leu Tyr Gln Ala Gly Leu Ala Val Arg Pro Gly Lys Ser
  130                      135                      140

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Ala Ala Gln Leu Val Gly Glu Leu Gly Ser Leu Tyr Gly Pro Leu Ser
  145                      150                      155                      160

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Val Ser Ala Tyr Val Ala Gly Ile Leu Gly Leu Gly Glu Val Tyr Ser
                165                      170                      175

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Gly Val Leu Thr Val Gly Val Ala Leu Arg Arg Arg Val Tyr Leu Met
180 185 190

Pro Asn Leu Lys Cys Ala Val Glu Cys Asp Val Lys Trp Gly Ser Glu
195 200 205

Phe Trp Arg Trp Thr Glu Gln Leu Ala Ser Asn Tyr Trp Ile Leu Glu
210 215 220

Tyr Leu Trp Lys Val Pro Phe Glu Phe Trp Arg Gly Val Met Ser Leu
225 230 235 240

Thr Pro Leu Leu Val Trp Val Ala Ala Leu Leu Leu Leu Glu Gln Arg
245 250 255

Ile Val Met Val Phe Leu Leu Val Thr Met Ala Gly Met Leu Gln Gly
260 265 270

Ala Pro Ala Ser Val Leu Gly Ser Arg Pro Phe Asp Tyr Gly Leu Lys
275 280 285

Trp Gln Ser Cys Ser Cys Arg Ala Asn Gly Ser Arg Ile Pro Thr Gly
290 295 300

Glu Arg Val Trp Asp Arg Gly Asn Val Thr Leu Leu Cys Asp Cys Pro
305 310 315 320

Asn Gly Pro Trp Val Trp Val Pro Ala Phe Cys Gln Ala Val Gly Trp
325 330 335

Gly Asp Pro Ile Thr His Trp Ser His Gly Gln Asn Gln Trp Pro Leu
340 345 350

Ser Cys Pro Gln Tyr Val Tyr Gly Ser Val Ser Val Thr Cys Val Trp
355 360 365

Gly Ser Val Ser Trp Phe Ala Ser Thr Gly Gly Arg Asp Ser Lys Ile
370 375 380

Asp Val Trp Ser Leu Val Pro Val Gly Ser Ala Ser Cys Thr Ile Ala
385 390 395 400

Ala Leu Gly Ser Ser Asp Arg Asp Thr Val Val Glu Leu Ser Glu Trp
405 410 415

Gly Val Pro Cys Val Thr Cys Ile Leu Asp Arg Arg Pro Ala Ser Cys
420 425 430

Gly Thr Cys Val Arg Asp Cys Trp Pro Glu Thr Gly Ser Val Arg Phe
435 440 445

Pro Phe His Arg Cys Gly Thr Gly Pro Arg Leu Thr Lys Asp Leu Glu
450 455 460

Ala Val Pro Phe Val Asn Arg Thr Thr Pro Phe Thr Ile Arg Gly Pro
465 470 475 480

Leu Gly Asn Gln Gly Arg Gly Asn Pro Val Arg Ser Pro Leu Gly Phe
 485 490 495
 Gly Ser Tyr Thr Met Thr Lys Ile Arg Asp Ser Leu His Leu Val Lys
 500 505 510
 Cys Pro Thr Pro Ala Ile Glu Pro Pro Thr Gly Thr Phe Gly Phe Phe
 515 520 525
 Pro Gly Val Pro Pro Ile Asn Asn Cys Met Pro Leu Gly Thr Glu Val
 530 535 540
 Ser Glu Ala Leu Gly Gly Ala Gly Leu Thr Gly Gly Phe Tyr Glu Pro
 545 550 555 560
 Leu Val Arg Arg Cys Ser Glu Leu Met Gly Arg Arg Asn Pro Val Cys
 565 570 575
 Pro Gly Tyr Ala Trp Leu Ser Ser Gly Arg Pro Asp Gly Phe Ile His
 580 585 590
 Val Gln Gly His Leu Gln Glu Val Asp Ala Gly Asn Phe Ile Pro Pro
 595 600 605
 Pro Arg Trp Leu Leu Leu Asp Phe Val Phe Val Leu Leu Tyr Leu Met
 610 615 620
 Lys Leu Ala Glu Ala Arg Leu Val Pro Leu Ile Leu Leu Leu Leu Trp
 625 630 635 640
 Trp Trp Val Asn Gln Leu Ala Val Leu Gly Leu Pro Ala Val Asp Ala
 645 650 655
 Ala Val Ala Gly Glu Val Phe Ala Gly Pro Ala Leu Ser Trp Cys Leu
 660 665 670
 Gly Leu Pro Thr Val Ser Met Ile Leu Gly Leu Ala Asn Leu Val Leu
 675 680 685
 Tyr Phe Arg Trp Met Gly Pro Gln Arg Leu Met Phe Leu Val Leu Trp
 690 695 700
 Lys Leu Ala Arg Gly Ala Phe Pro Leu Ala Leu Leu Met Gly Ile Ser
 705 710 715 720
 Ala Thr Arg Gly Arg Thr Ser Val Leu Gly Ala Glu Phe Cys Phe Asp
 725 730 735
 Val Thr Phe Glu Val Asp Thr Ser Val Leu Gly Trp Val Val Ala Ser
 740 745 750
 Val Val Ala Trp Ala Ile Ala Leu Leu Ser Ser Met Ser Ala Gly Gly
 755 760 765
 Trp Lys His Lys Ala Val Ile Tyr Arg Thr Trp Cys Lys Gly Tyr Gln
 770 775 780

Ala	Val	Arg	Gln	Arg	Val	Val	Arg	Ser	Pro	Leu	Gly	Glu	Gly	Arg	Pro	785	790	795	800
Thr	Lys	Leu	Leu	Thr	Phe	Ala	Trp	Cys	Leu	Ala	Ser	Tyr	Ile	Trp	Pro	805	810	815	
Asp	Ala	Val	Met	Met	Val	Val	Val	Ala	Leu	Val	Leu	Leu	Phe	Gly	Leu	820	825	830	
Phe	Asp	Ala	Leu	Asp	Trp	Ala	Leu	Glu	Glu	Leu	Leu	Val	Ser	Arg	Pro	835	840	845	
Ser	Leu	Arg	Arg	Leu	Ala	Arg	Val	Val	Glu	Cys	Cys	Val	Met	Ala	Gly	850	855	860	
Glu	Lys	Ala	Thr	Thr	Ile	Arg	Leu	Val	Ser	Lys	Met	Cys	Ala	Arg	Gly	865	870	875	880
Ala	Tyr	Leu	Phe	Asp	His	Met	Gly	Ser	Phe	Ser	Arg	Ala	Val	Lys	Glu	885	890	895	
Arg	Leu	Leu	Glu	Trp	Asp	Ala	Ala	Leu	Glu	Pro	Leu	Ser	Phe	Thr	Arg	900	905	910	
Thr	Asp	Cys	Arg	Ile	Ile	Arg	Asp	Ala	Ala	Arg	Thr	Leu	Ser	Cys	Gly	915	920	925	
Gln	Cys	Val	Met	Gly	Leu	Pro	Val	Val	Ala	Arg	Arg	Gly	Asp	Glu	Val	930	935	940	
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Pro	Thr	Ala	Pro	Val	Val	Ile	Arg	Arg	Cys	Gly	Lys	Gly	Phe	Leu	Gly	965	970	975	
Val	Thr	Lys	Ala	Ala	Leu	Thr	Gly	Arg	Asp	Pro	Asp	Leu	His	Pro	Gly	980	985	990	
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Leu	Asn	Gly	Leu	Leu	Phe	Thr	Thr	Phe	His	Gly	Ala	Ser	Ser	Arg	Thr	1010	1015	1020	
Ile	Ala	Thr	Pro	Val	Gly	Ala	Leu	Asn	Pro	Arg	Trp	Trp	Ser	Ala	Ser	1025	1030	1035	1040
Asp	Asp	Val	Thr	Val	Tyr	Pro	Leu	Pro	Asp	Gly	Ala	Thr	Ser	Leu	Thr	1045	1050	1055	
Pro	Cys	Thr	Cys	Gln	Ala	Glu	Ser	Cys	Trp	Val	Ile	Arg	Ser	Asp	Gly	1060	1065	1070	
Ala	Leu	Cys	His	Gly	Leu	Ser	Lys	Gly	Asp	Lys	Val	Glu	Leu	Asp	Val	1075	1080	1085	

Ala Met Glu Val Ser Asp Phe Arg Gly Ser Ser Gly Ser Pro Val Leu
1090 1095 1100

Cys Asp Lys Gly His Ala Val Arg Met Leu Val Ser Val Leu His Ser
1105 1110 1115 1120

Gly Gly Arg Val Thr Ala Ala Arg Phe Thr Arg Pro Trp Thr Gln Val
1125 1130 1135

Pro Thr Asp Ala Lys Thr Thr Thr Glu Pro Pro Pro Val Pro Ala Lys
1140 1145 1150

Gly Val Phe Lys Glu Ala Pro Leu Phe Met Pro Thr Gly Ala Gly Lys
1155 1160 1165

Ser Thr Arg Val Pro Leu Glu Tyr Gly Asn Met Gly His Lys Val Leu
1170 1175 1180

Ile Leu Asn Pro Ser Val Ala Thr Val Arg Ala Met Gly Pro Tyr Met
1185 1190 1195 1200

Glu Arg Leu Ala Gly Lys His Pro Ser Ile Tyr Cys Gly His Asp Thr
1205 1210 1215

Thr Ala Phe Thr Arg Ile Thr Asp Ser Pro Leu Thr Tyr Ser Thr Tyr
1220 1225 1230

Gly Arg Phe Leu Ala Asn Pro Arg Gln Met Leu Arg Gly Val Ser Val
1235 1240 1245

Val Ile Cys Asp Glu Cys His Ser His Asp Ser Thr Val Leu Leu Gly
1250 1255 1260

Ile Gly Arg Val Arg Glu Leu Ala Arg Gly Cys Gly Val Gln Leu Val
1265 1270 1275 1280

Leu Tyr Ala Thr Ala Thr Pro Pro Gly Ser Pro Met Thr Gln His Pro
1285 1290 1295

Ser Ile Ile Glu Thr Lys Leu Asp Val Gly Glu Ile Pro Phe Tyr Gly
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His Gly Ile Pro Leu Glu Arg Met Arg Thr Gly Arg His Leu Val Phe
1315 1320 1325

Cys His Ser Lys Ala Glu Cys Glu Arg Leu Ala Gly Gln Phe Ser Ala
1330 1335 1340

Arg Gly Val Asn Ala Ile Ala Tyr Tyr Arg Gly Lys Asp Ser Ser Ile
1345 1350 1355 1360

Ile Lys Asp Gly Asp Leu Val Val Cys Ala Thr Asp Ala Leu Ser Thr
1365 1370 1375

Gly Tyr Thr Gly Asn Phe Asp Ser Val Thr Asp Cys Gly Leu Val Val
1380 1385 1390

Glu Glu Val Val Glu Val Thr Leu Asp Pro Thr Ile Thr Ile Ser Leu
1395 1400 1405

Arg Thr Val Pro Ala Ser Ala Glu Leu Ser Met Gln Arg Arg Gly Arg
1410 1415 1420

Thr Gly Arg Gly Arg Ser Gly Arg Tyr Tyr Tyr Ala Gly Val Gly Lys
1425 1430 1435 1440

Ala Pro Ala Gly Val Val Arg Ser Gly Pro Val Trp Ser Ala Val Glu
1445 1450 1455

Ala Gly Val Thr Trp Tyr Gly Met Glu Pro Asp Leu Thr Ala Asn Leu
1460 1465 1470

Leu Arg Leu Tyr Asp Asn Cys Pro Tyr Thr Ala Ala Val Ala Ala Asp
1475 1480 1485

Ile Gly Glu Ala Ala Val Phe Phe Ser Gly Leu Ala Pro Leu Arg Met
1490 1495 1500

His Pro Asp Val Ser Trp Ala Lys Val Arg Gly Val Asn Trp Pro Phe
1505 1510 1515 1520

Leu Val Gly Val Gln Arg Thr Met Cys Arg Glu Thr Leu Ser Pro Gly
1525 1530 1535

Pro Ser Asp Asp Pro Gln Trp Ala Gly Leu Lys Gly Pro Asn Pro Val
1540 1545 1550

Pro Leu Leu Leu Arg Trp Gly Asn Asp Leu Pro Ser Lys Val Ala Gly
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His His Ile Val Asp Asp Leu Val Arg Arg Leu Gly Val Ala Glu Gly
1570 1575 1580

Tyr Val Arg Cys Asp Ala Gly Pro Ile Leu Met Val Gly Leu Ala Ile
1585 1590 1595 1600

Ala Gly Gly Met Ile Tyr Ala Ser Tyr Thr Gly Ser Leu Val Val Val
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Thr Asp Trp Asp Val Lys Gly Gly Gly Ser Pro Leu Tyr Arg His Gly
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Asp Gln Ala Thr Pro Gln Pro Val Val Gln Val Pro Pro Val Asp His
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Arg Pro Gly Gly Glu Ser Ala Pro Ser Asp Ala Asn Thr Val Thr Asp
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Ala Val Ala Ala Ile Gln Val Asp Cys Asp Trp Ser Val Met Thr Leu
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Ser Ile Gly Glu Val Leu Ser Leu Ala Gln Ala Lys Thr Ala Glu Ala
1685 1690 1695

Tyr Ala Ala Thr Thr Lys Trp Leu Ala Gly Cys Tyr Thr Gly Thr Arg
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Ala Val Pro Thr Val Ser Ile Val Asp Lys Leu Phe Ala Gly Gly Trp
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Ala Ala Val Val Gly His Cys His Ser Val Ile Ala Ala Val Ala
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Ala Tyr Gly Ala Ser Arg Ser Pro Pro Leu Ala Ala Ala Ser Tyr
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Ala Leu Leu Leu Gly Ala Ala Gly Thr Ala Leu Gly Thr Pro Val Val
1780 1785 1790

Gly Leu Thr Met Ala Gly Ala Phe Met Gly Ser Ala Ser Val Ser Pro
1795 1800 1805

Ser Leu Val Thr Ile Leu Leu Gly Ala Val Gly Gly Trp Glu Gly Val
1810 1815 1820

Val Asn Ala Ala Ser Leu Val Phe Asp Phe Met Ala Gly Lys Leu Ser
1825 1830 1835 1840

Ser Glu Asp Leu Trp Tyr Ala Ile Pro Val Leu Thr Ser Pro Gly Ala
1845 1850 1855

Gly Leu Ala Gly Ile Ala Leu Gly Leu Val Leu Tyr Ser Ala Asn Asn
1860 1865 1870

Ser Gly Thr Thr Thr Trp Leu Asn Arg Leu Leu Thr Thr Leu Pro Arg
1875 1880 1885

Ser Ser Cys Ile Pro Asp Ser Tyr Phe Gln Gln Ala Asp Tyr Cys Asp
1890 1895 1900

Lys Val Ser Ala Val Leu Arg Arg Leu Ser Leu Thr Arg Thr Val Val
1905 1910 1915 1920

Ala Leu Val Asn Arg Glu Pro Lys Val Asp Glu Val Gln Val Gly Tyr
1925 1930 1935

Val Trp Asp Leu Trp Glu Trp Ile Met Arg Gln Val Arg Met Val Met
1940 1945 1950

Ala Arg Leu Arg Ala Leu Cys Pro Val Val Ser Leu Pro Leu Trp His
1955 1960 1965

Cys Gly Glu Gly Trp Ser Gly Glu Trp Leu Leu Asp Gly His Val Glu
1970 1975 1980

Ser Arg Cys Leu Cys Gly Cys Val Ile Thr Gly Asp Val Leu Asn Gly
1985 1990 1995 2000

Gln Leu Lys Asp Pro Val Tyr Ser Thr Lys Leu Cys Arg His Tyr Trp
 2005 2010 2015
 Met Gly Thr Val Pro Val Asn Met Leu Gly Tyr Gly Glu Thr Ser Pro
 2020 2025 2030
 Leu Leu Ala Ser Asp Thr Pro Lys Val Val Pro Phe Gly Thr Ser Gly
 2035 2040 2045
 Trp Ala Glu Val Val Val Thr Pro Thr His Val Val Ile Arg Arg Thr
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 Ser Ala Tyr Lys Leu Leu Arg Gln Gln Ile Leu Ser Ala Ala Val Ala
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 Glu Pro Tyr Tyr Val Asp Gly Ile Pro Val Ser Trp Asp Ala Asp Ala
 2085 2090 2095
 Arg Ala Pro Ala Met Val Tyr Gly Pro Gly Gln Ser Val Thr Ile Asp
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 Gly Glu Arg Tyr Thr Leu Pro His Gln Leu Arg Leu Arg Asn Val Ala
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 Pro Ser Glu Val Ser Ser Glu Val Ser Ile Asp Ile Gly Thr Glu Thr
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 Glu Asp Ser Glu Leu Thr Glu Ala Asp Leu Pro Pro Ala Ala Ala Ala
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 Leu Gln Ala Ile Glu Asn Ala Ala Arg Ile Leu Glu Pro His Ile Asp
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 Glu Met Pro Val Trp Gly Glu Asp Ile Pro Arg Thr Pro Ser Pro Ala
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 2245 2250 2255
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 2260 2265 2270
 Leu Thr Val Lys Met Ser Cys Cys Val Glu Lys Ser Val Thr Arg Phe
 2275 2280 2285
 Phe Ser Leu Gly Leu Thr Val Ala Asp Val Ala Ser Leu Cys Glu Met
 2290 2295 2300

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Val Arg Pro Val Gly Ser Leu Leu Val Ala Asp Thr Thr Lys Val Tyr
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Val Thr Asn Pro Asp Asn Val Gly Arg Arg Val Asp Lys Val Thr Phe
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Trp Arg Ala Pro Arg Val His Asp Lys Phe Leu Val Asp Ser Ile Glu
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Arg Ala Lys Arg Ala Ala Gln Ala Cys Leu Ser Met Gly Tyr Thr Tyr
 2420 2425 2430

Glu Glu Ala Ile Arg Thr Val Arg Pro His Ala Ala Met Gly Trp Gly
 2435 2440 2445

Ser Lys Val Ser Val Lys Asp Leu Ala Thr Pro Ala Gly Lys Met Ala
 2450 2455 2460

Val His Asp Arg Leu Gln Glu Ile Leu Glu Gly Thr Pro Val Pro Phe
 2465 2470 2475 2480

Thr Leu Thr Val Lys Lys Glu Val Phe Phe Lys Asp Arg Lys Glu Glu
 2485 2490 2495

Lys Ala Pro Arg Leu Ile Val Phe Pro Pro Leu Asp Phe Arg Ile Ala
 2500 2505 2510

Glu Lys Leu Ile Leu Gly Asp Pro Gly Arg Val Ala Lys Ala Val Leu
 2515 2520 2525

Gly Gly Ala Tyr Ala Phe Gln Tyr Thr Pro Asn Gln Arg Ile Arg Glu
 2530 2535 2540

Met Leu Lys Leu Trp Glu Ser Lys Lys Thr Pro Cys Ala Ile Cys Val
 2545 2550 2555 2560

Asp Ala Thr Cys Phe Asp Ser Ser Ile Thr Glu Glu Asp Val Ala Leu
 2565 2570 2575

Glu Thr Glu Leu Tyr Ala Leu Ala Ser Asp His Pro Glu Trp Val Arg
 2580 2585 2590

Ala Leu Gly Lys Tyr Tyr Ala Ser Gly Thr Met Val Thr Pro Glu Gly
 2595 2600 2605

Val Pro Val Gly Glu Arg Tyr Cys Arg Ser Ser Gly Val Leu Thr Thr
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Ser Ala Ser Asn Cys Leu Thr Cys Tyr Ile Lys Val Lys Ala Ala Cys
2625 2630 2635 2640

Glu Arg Val Gly Leu Lys Asn Val Ser Leu Leu Ile Ala Gly Asp Asp
2645 2650 2655

Cys Leu Ile Ile Cys Glu Arg Pro Val Cys Asp Pro Ser Asp Ala Leu
2660 2665 2670

Gly Arg Ala Leu Ala Ser Tyr Gly Tyr Ala Cys Glu Pro Ser Tyr His
2675 2680 2685

Ala Ser Leu Asp Thr Ala Pro Phe Cys Ser Thr Trp Leu Ala Glu Cys
2690 2695 2700

Asn Ala Asp Gly Lys Arg His Phe Phe Leu Thr Thr Asp Phe Arg Arg
2705 2710 2715 2720

Pro Leu Ala Arg Met Ser Ser Glu Tyr Ser Asp Pro Met Ala Ser Ala
2725 2730 2735

Ile Gly Tyr Ile Leu Leu Tyr Pro Trp His Pro Ile Thr Arg Trp Val
2740 2745 2750

Ile Ile Pro His Val Leu Thr Cys Ala Phe Arg Gly Gly Gly Thr Pro
2755 2760 2765

Ser Asp Pro Val Trp Cys Gln Val His Gly Asn Tyr Tyr Lys Phe Pro
2770 2775 2780

Leu Asp Lys Leu Pro Asn Ile Ile Val Ala Leu His Gly Pro Ala Ala
2785 2790 2795 2800

Leu Arg Val Thr Ala Asp Thr Thr Lys Thr Lys Met Glu Ala Gly Lys
2805 2810 2815

Val Leu Ser Asp Leu Lys Leu Pro Gly Leu Ala Val His Arg Lys Lys
2820 2825 2830

Ala Gly Ala Leu Arg Thr Arg Met Leu Arg Ser Arg Gly Trp Ala Glu
2835 2840 2845

Leu Ala Arg Gly Leu Leu Trp Arg Pro Gly Leu Arg Leu Pro Pro Pro
2850 2855 2860

Glu Ile Ala Gly Ile Pro Gly Gly Phe Pro Leu Ser Pro Pro Tyr Met
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Gly Val Val His Gln Leu Asp Phe Thr Ser Gln Arg Ser Arg Trp Arg
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Trp Leu Gly Phe Leu Ala Leu Leu Ile Val Ala Leu Phe Gly
2900 2905 2910

14